

# The UK Turfgrass Market: An Overview of Customer Needs and Market Opportunities—an Agronomist's Perception\*

Jeffery Perris

The Sports Turf Research Institute, Bingley, West Yorkshire, BD16 1AU, UK

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**Abstract:** This paper discusses the experience of turfgrass advisory agronomists and research workers at the Sports Turf Research Institute—a long-established and independent organisation devoted purely to research and advice pertaining to turfgrasses and their culture.

In the assessment of customer needs and market opportunities, strenuous efforts have been made to establish recent and current trends relating to pesticide sales, either from manufacturers and/or distributors. Because manufacturers were reluctant to divulge information about products, and distributors apparently had no access to such information, the only available data on pesticide use and sales are in the British Agrochemicals Association via their 1995 Annual Review and Handbook.

**Key words:** turfgrass, pesticide, fungicide, herbicide, insecticide, lumbricide, legislation

## 1 INTRODUCTION

### 1.1 General pesticide use/available market

The 1995 British Agrochemicals Association Annual Review and Handbook<sup>1</sup> does not give information regarding pesticide use and sales solely in the amenity sector, this being included as part of the industrial and forestry section. This particular section of industrial, amenity and forestry pesticides showed a total increase in sales of product active ingredient in the UK from 691 000 kg in 1993 to 747 000 kg in 1994.

Figure 1 indicates the change in UK sales for herbicides, insecticides and fungicides for the industrial, amenity and forestry markets during the period 1988–94 and the data in Table 1 show the areas dedicated to amenity use in the UK.

Based on a paper presented at the Symposium 'Pest Management in Turf', organised by J. M. Smith, L. G. Copping and P. J. Ryan on behalf of the SCI Pesticides Group, and held at the Hotel Metropole, Brighton, UK on 20 November 1995.

### 1.2 Herbicide use

A wide range of active ingredients and products remains available to groundsmen and greenkeepers for use when necessary. There have been some changes in chemicals

**TABLE 1**  
Areas of Land in the UK Dedicated to Amenity Use in 1994

Use category	Area (ha × 10 <sup>3</sup> )	Number of pitches <sup>a</sup>	Number <sup>b</sup> (× 10 <sup>6</sup> )
Golf Courses <sup>c</sup>	145	na	na
Association Football	na	38 571	na
Rugby Union Football	na	7071	na
Rugby League Football	na	860	na
Cricket	na	11 730	na
Hockey	na	8327	na
Lawns	na	na	15

<sup>a</sup> Data for England only: Source, Ref. 3: Total number 77 946.

<sup>b</sup> Average area 110 m<sup>2</sup>.

<sup>c</sup> Data for UK.

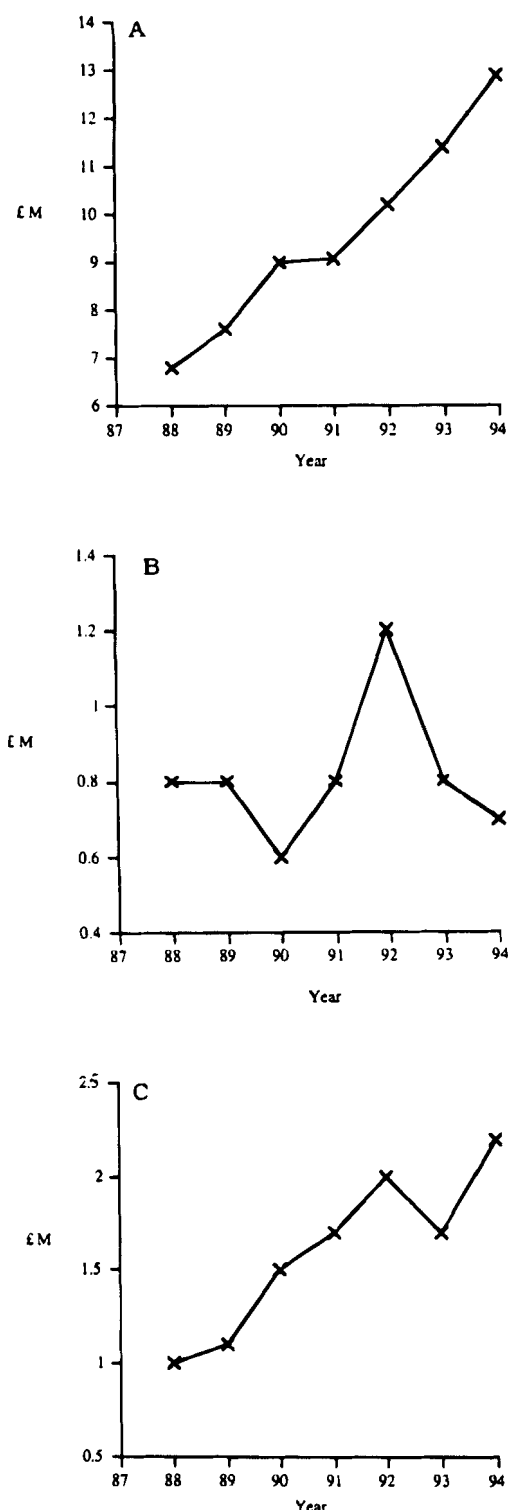


Fig. 1. UK sales (£M) of pesticides for amenity, industrial and forestry use, 1987–94: A, herbicides; B, insecticides; C, fungicides.

approved for turf, with the introduction of some new formulations and the phasing out of some chemicals such as ioxynil.

The production of fine quality turf free from *Poa annua* L. has been a long-time aim of most turf producers. It is possible that some within the turf pro-

duction industry have attempted to achieve *P. annua*-free turf by selective herbicide treatment.

### 1.3 Fungicide use

Tried and proven contact and systemic materials such as carbendazim, chlorothalonil, iprodione, fenarimol, thiophanate-methyl, quintozone, vinclozolin, thiabendazole, oxycarboxin and triforine remain buoyant in terms of use. Within the last year or so, some new products, particularly those that combine systemic and contact action, have become available to the turf industry. There remains a number of turf grass disease problems where, at the moment, there are either no effective approved fungicides or materials of only low efficacy, e.g. the treatment of Take-all disease (*Gaeumannomyces graminis* (Sacc.) v. Arx & Olivier), and some superficial fairy rings. In recent years there seems to have been an increase in the range of fungi causing turfgrass problems, examples being Leaf blight (*Colletotrichum graminicola* (Ces.) Wils.), *Ascochyta* spp., Brown patch (*Rhizoctonia solani* Kühn) and Dollar spot (*Sclerotinia homoeocarpa* F.T. Bennett).

### 1.4 Problems with earthworms and moles

The withdrawal of the more persistent chemicals, such as chlordane, has had a major impact at some sites, especially those prone to significant earthworm activity. Approved lumbricides for turf use seem to be effective for a relatively short period and repeated treatments are required if site circumstances dictate such actions and finances permit. There appears to be increasing mole activity at some sites, particularly golf courses.

### 1.5 Environmental issues

Greenkeeping and Groundsman Organisations, as well as the sport-controlling bodies, show an increasing awareness and responsibility towards environmental matters and the impact that pesticide use may create in certain circumstances. The adoption of integrated management measures to deal with turfgrass pest problems is now a well established policy with most turfgrass managers. There has been significant work on the possible environmental effects of some pesticides, particularly in the USA, where the United States Golf Association (USGA) invested large amounts of money into a programme aimed at finding out more about the possible effects that golf management has upon the environment.

### 1.6 Pesticide legislation

Whilst professional groundsmen and greenkeepers are very much aware of the legal requirements relating to

pesticide use, there remains an unbelievable number of people responsible for maintaining turf areas, e.g. the numerous volunteer groundsmen at smaller sports clubs, etc. who are totally ignorant of the obligations imposed by the Food and Environment Protection Act 1985 and the Control of Pesticide Regulations 1986.

## 2 AN APPRAISAL OF THE PRESENT SITUATION

### 2.1 General trends

With little, if any, market research information available publicly, it is difficult to offer objective comment on possible future trends of pesticide use and sales. As an agronomist in an organisation that undertakes by far the greatest amount of turfgrass consultancy work in Britain (ranging from small bowling clubs, sports clubs and golf clubs to large local authorities) it is apparent that there is a trend away from a reliance on pesticides towards an appropriate integrated management policy for reducing, and indeed hopefully eliminating, turfgrass pest problems. Environmental reasons are probably behind this trend but it is also possible in some instances that the withdrawal of some effective pesticides in recent years, e.g. chlordane, has caused many turfgrass managers to re-think their pest control strategy. On the domestic front, with greater numbers of householders appearing to take greater interest in their lawns, the domestic pesticide market would be expected to grow.

### 2.2 Herbicides

Whilst many turfgrass managers will implement an integrated management policy which will probably reduce herbicide use, there will, nevertheless, remain a reliance upon herbicides at many sites in their attempts to produce a 'clean' sward. It seems unlikely that there will be any significant changes in the herbicides in general use unless research and development produces more effective and environmentally friendly products.

There is a considerable need for an 'environmentally friendly' herbicide for the control of *P. annua* in fine turf. The reasons why *P. annua* perpetuates in fine turf (and indeed in coarser turf) are numerous and varied and, whilst an integrated management approach can achieve some effect, a chemical approach to the problem may be more appropriate. Past research has shown that a number of chemicals offer potential for controlling *P. annua* in certain types of turf, e.g. methabenzthiazuron in fescue swards and ethofumesate in ryegrass swards (the latter has some formulations

approved for use in turf already). Of course commercial organisations would have to investigate the commercial viability of such a graminicide and agronomists and turf managers would have to re-assess the future management of the turf species remaining after *P. annua* elimination. Experience gained in Holland with methabenzthiazuron applied to pure fescue swards (J. Perris, unpublished) showed it to be highly effective against *P. annua* but thereafter it was important to manage the fescue sward appropriately if this species was to be sustained and present a first-class playing surface.

### 2.3 Fungicides

That turfgrass diseases considered unusual to the UK have been identified in recent years may be due to a change in environmental conditions; warmer winters and, possibly, hotter summers (as in 1995) may initiate turfgrass diseases more commonly associated with warmer climates. Also, some turfgrass disease problems are now being more accurately identified and diagnosed.

It is thus possible that there will be a need for effective fungicides approved for use on a much wider range of fungi affecting turfgrasses than at present. For example, during the summer of 1995 there were a number of instances where golf greens were affected by leaf blight, a disease for which there is no effective approved treatment. There also remains a number of more common turfgrass fungal problems such as Take-all disease and some superficial fairy rings for which there is also no effective and approved chemical answer. Possibly, the use of very sandy root-zones in many sports turf situations has induced turfgrass disease problems of a less common, and possibly more worrying, nature than those more regularly experienced by groundsmen on soil-based root-zones. Research and development into fungicides for turfgrass diseases seem to be important for the future.

Other potential developments that may influence future fungicide sales could include the development of antagonistic micro-organisms which could be incorporated in the root-zones of new constructions or may be injected into the root-zone of existing turf areas. Already there are several such products on the market but it is far from clear how effective many of them are at present.

### 2.4 Insecticides and lumbricides

No doubt the most worrying aspect here is the absence of a good lumbricide which is not only effective but also

reasonably persistent and environmentally friendly. Many turfgrass managers are now finding an increasing problem with worm-casting at some sites as the effects of chlordane, applied prior to its prohibition, begin to diminish. This Research Institute is currently evaluating a number of potential methods of control, including integrated management techniques and the possible use of expellents. Many turfgrass managers and agronomists feel that problems due to worm casting at some sites are just beginning and there is a fear that the consequence of use of ineffective and/or expensive lumbricides at some sites will be such that the playing surface becomes almost unusable at certain times. In Germany, where worm control is forbidden, there are some golf courses that have to close for a short time each year at the height of the worm-casting season.

If climatic changes persist, we may have to find effective insecticides against new pests such as cutworms (*Noctuidae*).

Insecticide use may also be ultimately affected in some situations by the introduction and action of biological predators. Perhaps the most current example is the effect that the New Zealand flat worm (*Artioposthia triangulata* (Dendy)) is having on our native earthworm population in certain parts of the country.

## 2.5 Environmental issues

Whilst there are some data of European origin relating to pesticide fate in turf, the major work in this area has been carried out in a three-year study initiated by the USGA in 1991.<sup>2</sup> Whilst the numerous research projects at many universities concentrated on the golf environment, the findings would, of course, be generally applicable to most types of sports turf surface and especially those constructed with a very free-draining sandy profile. One must, however, also consider the USGA findings<sup>2</sup> in the context of their climatic circumstances and often varying approach to management and usage of the turf areas. What is clear from much of that work is that pesticide fate is influenced by the nature of the root-zone and its management. For example, one newly established free-draining sandy root-zones, there is a greater chance of leaching in comparison to a well-established sward with good root action. In the future in this country it is likely that there will be increasing attention paid to awareness of pesticide fate, and turfgrass managers will have to become more aware of such pesticide characteristics as water solubility, microbial degradation, chemical degradation and volatilisation, as well as uptake into plants, before applying them to sites with very free-draining sandy soils or indeed sloping areas with a poor grass cover and low infiltration rates where there is a risk of surface run-off. The pesticide industry, as well as those centres involved in education,

may have to play a more active role in the future with regard to choice of pesticide for a given use and situation.

## 2.6 Turfgrass development

In the years ahead there will be further progress in terms of turfgrass cultivar performance and it is likely that this will include greater disease resistance to certain fungal diseases. This may ultimately affect fungicide sales, although the major part of UK turfgrass areas are likely to remain prone to fungal attack, especially if they are not managed efficiently.

## 3 DISCUSSION AND CONCLUSIONS

Hopefully all turfgrass agronomists will advise the implementation of an integrated pest management programme as a major priority. There must remain, however, a need for effective, affordable and environmentally friendly pesticides for use when necessary. It is particularly crucial on sports turf areas used by professional sportsmen that the highest of standards are presented continually and consistently. The wear and tear pressures often exerted by professional sport on the playing surface are such that the turf is maintained in a totally unnatural way and indeed it is difficult to see how pesticide use can be avoided in some circumstances.

Assessment of the most appropriate pesticide to use, considering the site and environmental circumstances, could well be a greater issue in the future than it has been in the past and for this reason all concerned in the turf industry will have a part to play (manufacturers, educationists, agronomists etc.).

A great deal of work is needed in this country to educate the very many people who undertake turfgrass management on a voluntary basis. As an advisor to many small clubs, where ignorance about pesticide legislation is unfortunately all too common, it has been necessary in recent years to guide many clients towards using a local contractor for pesticide application. Whilst small volunteer-run sports clubs are likely to be only a small part of the amenity market, I wonder just how much pesticide business may be lost due to possible extra cost and inconvenience of using a contractor.

Future legalisation affecting pesticide use in the UK remains a concern in many quarters. If we in the UK are likely to be made to take the route of some of our European counterparts, where certain types of pesticide are forbidden, then I fear that this could have major con-

sequences for the standard of turf and sports turf users in the UK.

Whilst in the future there will be some developments which will potentially reduce pesticide use, for example, improved turfgrass cultivars with better disease resistance, cultures of antagonistic organisms for inclusion in new sandy constructions or injection into existing turf surfaces, the possible use of biological predators for some insect pests, etc. there could well be factors which could increase some types of pesticide use in certain circumstances. If, for example, there are climatic changes afoot which may influence the nature and frequency of pest and disease problems then this may actually increase pesticide use.

Finally, one must also not forget the very simple fact that the amenity turf industry is expanding—more people are playing on greater areas of sports turf than ever before.

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